**Creating Highly Engaged Science Lessons in the Kindergarten Classroom**

**Stocks Elementary School**

Amy Pearce

Strategies

Goal

Objectives

1. Administrative Intern will observe Kindergarten classrooms and provide feedback to teachers.
2. Administrative Intern will provide professional development on how to implement Foss Kits and other hands on activities in the classroom.
3. Kindergarten Teachers and Administrative Intern attend grade level professional learning communities (PLC’s).
4. The use of explicit, purposeful science instruction.
5. Increase the use of Foss Kits in classrooms.

Improved science instruction in Kindergarten classrooms.

1. Increase students’ engagement in the learning of science.
2. Administrative Intern will facilitate the creation on hands-on, explicit science lesson plans.

NELA Evaluation Plan

Creating Highly Engaged Science Lessons in the Kindergarten Classroom

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| ***Internship Project Goal:***  Improved science instruction in Kindergarten classrooms. | | |
| ***Internship Project Strategies (What did you do?):***   1. ***Kindergarten Teachers and Administrative Intern will attend grade level professional learning communities.*** 2. ***Administrative Intern will facilitate the creation of hands-on, explicit science lesson.*** 3. ***Administrative Intern will provide professional development on how to Implement Foss Kits and other hands on activities.*** 4. ***Administrative Intern will observe Kindergarten classrooms and provide feedback to teachers.***   ***Activities:***   * Meet weekly for science PLC * Read Essential Standards for Science standards document and essential standards documents? * Pull activities and books to use in instruction. * Create essential questions for units of study. * Write units of study around essential questions. * Provide professional development on FOSS kits. | | |
| **Evaluation Questions** | Measures/Data Sources | **Results** |
| ***What do you need to know?*** | ***How will you find out?*** | ***What were the results?*** |
| **Strategy 1**  How often did Kindergarten Teachers meet to plan and evaluate science instruction?  What was the impact of the planning session in helping teacher understanding of science objectives and goals? | PLC notes and log  Survey- Likert Scale | * The Kindergarten team and administrative intern met 8 times throughout the third quarter in PLCs. 100% of the Kindergarten teachers attended the PLCs, except two teachers were absent from one each. During the PLCs we utilized the Essential Standards for Science as well as Cross Walk document produced by NCDPI. The teachers had not accessed the Cross Walk Document before we began to met. We used the Understanding by Design method for planning the quarter science unit. We first decided what we wanted the learning outcomes to be based on the Essential Standards and worked backwards to create assessment questions and then lessons. Each time we met, we discussed student performance on assessments, what we needed to do in our instruction based on their performance as well as shared resources for the next set of lessons. * 4 out of 7 Kindergarten teachers agreed that they were comfortable with their knowledge of the Essential Standards before they began this process. Two of the teachers neither agreed nor disagreed with the statement. One teacher stated she was not comfortable with her knowledge of the standards. 6 out of 7 Kindergarten teachers agree that after participating in the science PLC’s, they are comfortable with their knowledge of the NC Science Essential standards. Those same six also agree that as a result of participating in the PLC’s, they have an increased understanding of the concepts and content and how to teach them. The same six teachers also agreed that their knowledge and comfort in explicitly teaching those concepts and standards has increased. One Kindergarten teacher neither agreed nor disagreed. |
| **Strategy 2**  How often do teachers explicitly teach science in their classrooms and integrate it into their instruction  What is the impact on teacher comfort level with creating science lessons and assessments? | Lesson Plans and Observations  Survey- Likert Scale | * All 7 Kindergarten teachers began to integrate the science concepts in their daily lesson planning for the 9 week quarter. The themes were integrated into their reading/language arts centers and math instruction. Afternoon centers became science centers. Teachers explicitly taught the science curriculum 3-4 times a week during the quarter. * 4 out of 7 Kindergarten teachers agree that they have increased the time they spend teaching science concepts. 2 of those 4 teachers strongly agree. The remaining 2 Kindergarten teachers neither agree nor disagree. * 6 out of 7 Kindergarten teachers agree that after participating in the science PLC’s, they are comfortable with their knowledge of the NC Science Essential standards. Those same six Kindergarten teachers also agree that as a result of participating in the PLC’s, they have an increased understanding of the concepts and content and how to teach them. The Kindergarten teachers agreed that their knowledge and comfort in explicitly teaching those concepts and standards has increased. |
| **Strategy 3**  What was the impact on teacher comfort in implementing hands-on and Foss kit science activities in their classroom as a result of professional development provided?  How often did teachers incorporate practices and activities learned in professional development in their lessons? | Survey- Likert Scale  Lesson Plans, Observations and Survey (Likert Scale) | * We were unable to provide professional development on the FOSS kits and utilize them in the 3rd quarter instruction due to the delay in getting the kits in and inventoried. Also, the kits ordered for our school did not include one for the standards we were teaching this quarter in Kindergarten. * Could not be assessed because we were unable to provide the professional development and utilize the FOSS kits. |
| **Strategy 4**  How often were the science Standards incorporated in the classroom?  What was the impact of the feedback given to teachers from the administrative intern? | Observations and lesson plans  Survey- Likert Scale  Survey- Likert Scale | * The science standards were incorporated daily in all 7 Kindergarten teacher classrooms for the 9 week quarter, whether they were taught explicitly or integrated into other content areas. * 4 out of 7 Kindergarten teachers agree that they have increased the time they spend teaching science concepts. 2 of those 4 teachers strongly agree. The remaining 3 Kindergarten teachers neither agree or disagree * 100% of the Kindergarten teachers agree that the resources and feedback given by the administrative intern were useful in helping their understanding and planning of science instruction. * One teacher stated,” Collaborating with grade level and principal intern to look and analyze the standards and brainstorm ideas for teaching these standards.” * The need for more resources to use in lesson plans and instruction is an area of improvement that 3 of the 7 Kindergarten teachers recognized. |
| **Decisions** (*Guiding Questions: What do the results mean? What are you going to do now?)*  Summary of Results (*Interpretation of Data*):  The Kindergarten teachers were successful in meeting to discuss student learning objectives, assessment results and create lessons. 6 of the 7 Kindergarten teachers reported that their knowledge of content and concepts has increased as a result of our Science PLC’s. They also reported that their knowledge and comfort with explicitly teaching these concepts has increased. All of the Kindergarten teachers reported integrating the science concepts daily in their lesson planning. 4 of the 7 Kindergarten teachers report that they have increased the time they spend teaching science concepts.  We were unable to provide professional development for the FOSS kits due to the delay in receiving and inventorying them. Teachers were unable to use them because the kits purchased did not align with the student learning objectives being taught in the third quarter. 3 of the 7 Kindergarten teachers recognized the need for more resources to use in lessons plans as an area for improvement. This was part of the conversation each of our PLC meetings as well.    Next Steps (*Action Steps*):   * Throughout this process, we discussed areas of strengths and weaknesses after each unit of study. We used those to assist in planning for the next unit. Teachers need to continue to use the reflection process to help guide planning. * The team has also started a wiki site to store all resources and plans created. This site needs to be updated to include previous units of study. * Teachers have also identified that they need to review their pacing guide for next year. There were units of study they completed at the beginning of the year that would have worked well in this unit of study. They need to begin their focus at the beginning of the year and follow the same process we did for planning in the third quarter using the Understanding by Design format. Teachers also will continue this process for the last quarter of instruction. * Professional development on the use and incorporation of FOSS kits at all grade levels needs to be provided to ensure appropriate integration. Other professional development on inquiry based learning needs to be provided as well. * Teachers also need to work to utilize the use of science journals in the classroom. | | |

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| ***Internship Project Goal:***  Improved science instruction in Kindergarten classrooms. | | |
| ***Internship Project Objectives (Why did you do it?):***   1. Increase the use of FOSS Kits in classrooms. 2. Increase students’ engagement in the learning of science. 3. The use of explicit, purposeful science instruction. | | |
| **Evaluation Questions** | Measures/Data Sources | **Results** |
| ***What do you need to know?*** | ***How will you find out?*** | ***What were the results?*** |
| **Outcome A**  How often were the Foss Kits used in the classroom to teach science standards?  How did the use of the Foss kits improve student engagement and achievement in science? | Lesson Plans and Observations  Student Surveys  Survey- Likert Scale  Assessment data | * Could not be assessed because we were unable to utilize the FOSS kits due to a delay in delivery and inventorying. Also, the kits ordered for Kindergarten did not match the standards being taught this quarter. |
| **Outcome B**  What was the impact on student achievement in science?  How often are students engaged in explicit science instruction? | Assessment data results  Observations and lesson plans  Survey- Likert Scale | * About 90% of the 136 Kindergarten students were proficient each time assessed for each mini unit. The students were able to explain the concepts. After one assessment, all Kindergarten classes had about 90% students proficient except one class. Strategies for reteaching concepts were discussed. These included different approaches in instruction. * 5 out of 7 Kindergarten teachers agree that their students’ achievement in science has increased. 1 out of those 5 Kindergarten teachers strongly agrees. The 2 other Kindergarten teachers neither agreed nor disagreed. * Students received explicit science instruction 3 times a work for 9 weeks. Through observations and lesson planning, it was concluded that concepts were integrated in other subject areas and centers daily in the Kindergarten classroom. * 100% of the 7 Kindergarten teachers agree that their students’ engagement in science has increased due to more explicit science instruction. 1 of those 7 Kindergarten teachers strongly agrees. * 4 out of 7 Kindergarten teachers agree that they have increased the time they spend teaching science concepts. 2 of those 4 teachers strongly agree. The remaining teachers neither agree nor disagree. |
| **Outcome C**  How much time was spent throughout the day on teaching Essential Standards for Science?  What was the impact on student achievement in science? | Lesson Plans and Survey- Liker Scale  Assessment data results | * 100% of Kindergarten teachers spent at least 30 minutes of instructional time 3 times a week for science instruction. The other 30 minutes of the hour block designated to science and social studies was spent working in centers that incorporated science concepts taught. Science was also integrated daily in other subject areas. * 5 out of 7 Kindergarten teachers agree that they have increased the use of hands-on, inquiry based lessons for science instruction in their classroom. 1 of those 5 Kindergarten teachers strongly agree. The other 2 Kindergarten teachers neither agree nor disagree. * 4 out of 7 Kindergarten teachers agree that they have increased the time they spend teaching science concepts. 2 of those 4 teachers strongly agree. The remaining 2 Kindergarten teachers neither agree nor disagree. * 6 out of 7 Kindergarten teachers agree that this process has helped to improve the instruction in their classroom. 1 of those 6 Kindergarten teachers strongly agrees. * About 90% of the 141 Kindergarten students were proficient each time assessed for each mini unit. The students were able to explain the concepts. After one assessment, all classes had about 90% proficient except one class. Strategies for reteaching concepts were discussed. These included different approaches in instruction. * 5 out of 7 Kindergarten teachers agree that their students’ achievement in science has increased. 1 out of those 5 strongly agrees. The 2 other Kindergarten teachers neither agreed nor disagreed. |
| **Decisions** (*Guiding Questions: What do the results mean? What are you going to do now?)*  Summary of Results (*Interpretation of Data*):   * The use of FOSS kits could not be assessed because we were unable to utilize the FOSS kits due to a delay in delivery and inventorying. Also, the kits ordered for Kindergarten did not match the standards being taught this quarter. The time spent on science instruction in the classroom has increased. All of the teachers agree that their student engagement has increased due to more explicit science instruction. Also teachers feel that they have improved their science instruction. About 90% of the 141 Kindergarten students were proficient each time assessed for each mini unit. The students were able to explain the concepts. After one of the assessments, all classes had about 90% proficient except one class. 5 out of 7 Kindergarten teachers agree that their students’ achievement in science has increased. 1 out of those 5 Kindergarten teachers strongly agrees. The 2 other Kindergarten teachers neither agreed nor disagreed.   Next Steps (*Action Steps*):   * Teachers need more professional development on integrating hands-on, inquiry based science instruction. The use of science journals also needs to be a focus. * Currently, Kindergarten teachers are working to create a wiki to store their units and activities. This site needs to continue to be update and revised based on what teachers learn from implementing their lessons and activities. * Teachers have identified that they need to review their pacing guide for next year. There were units of study they completed at the beginning of the year that would have worked well in this unit of study. They need to begin their focus at the beginning of the year and follow the same process we did for planning in the third quarter using the Understanding by Design format. Teachers also need to continue this process for the last quarter of instruction. * Professional development on the use and incorporation of FOSS kits at all grade levels needs to be provided to ensure appropriate integration. Other professional development on inquiry based learning needs to be provided as well. * Kindergarten teachers need to continue to utilize their science block to teach science concepts as well as continue to integrate the content in their learning centers and reading blocks. * Teachers also need to work to utilize the use of science journals in the classroom. | | |

**Reflection**

This process has given me some thought on how to incorporate change in a school. One of the first areas was in actually identifying the area to improve and receive buy-in. It was important for me to conduct the research about the school to identify the culture and history. Also, it was important to understand the district’s background. In looking at science, there is no grade before 5th grade that requires students to take a state test to determine proficiency. However, looking at the district data, I was able to determine and explain the need to focus on science in the lower elementary grades. A second component for is the buy-in component. I initially received some push back because this required the teachers to utilize their afternoon block a in a different way. Science time was built into the schedule, but after several walkthroughs and observations, it was clear that the teachers were utilizing this time for something else. I had to sit down with the teachers and discuss how to utilize the time. Administrators worked with the teachers and compromised on how that time should be spent.

We ask our teachers to used the Understanding by Design UbD) method when constructing units, but when we implement new programs or practices, we don’t use this. In working through this process, I was able to use the UbD model. I had to identify my outcome, which was the driving force for the components. It also helped with the buy-in process. Any discussion around decisions to be made went back to that final outcome. If was going to help to improve science instruction, then we would do it.

I feel like identifying my questions to measure growth helped to first identify components that will be needed, but also pushed me to effectively assess the process. In education, a lot of programs come and go. Part of the reason is because of trends, but another reason is because we may not see an immediate change and through out the program entirely to adopt the next one. This process allowed us to identify what is working, but most importantly, what isn’t. Once we could identify what was not working, we could ask more questions to try to figure out why and make adjustments to the process as necessary. Many times starting over is not the solution, we may just need to tweak what already exists. By answering the questions, the teachers were also able to celebrate their successes.

Overall, this process helped me to identify and reflect in order to create a plan to improve student success. It provided a framework for assessing what works and what may need to be improved. I feel this is a great process to use in the School Improvement Team when trying to implement a new program or process to address an identified problem.